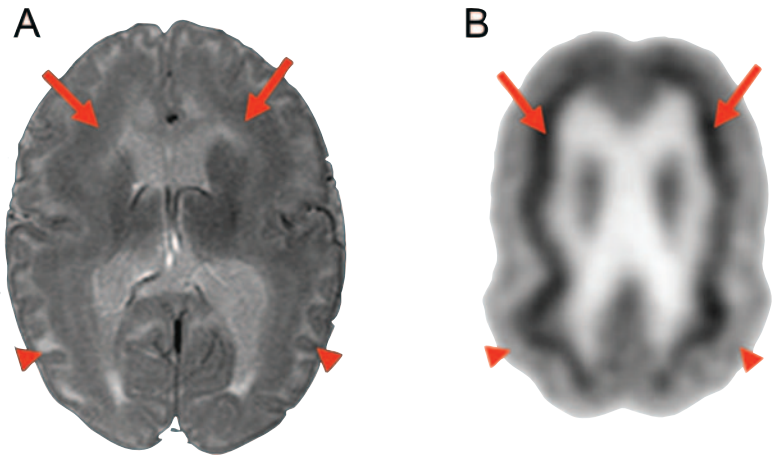
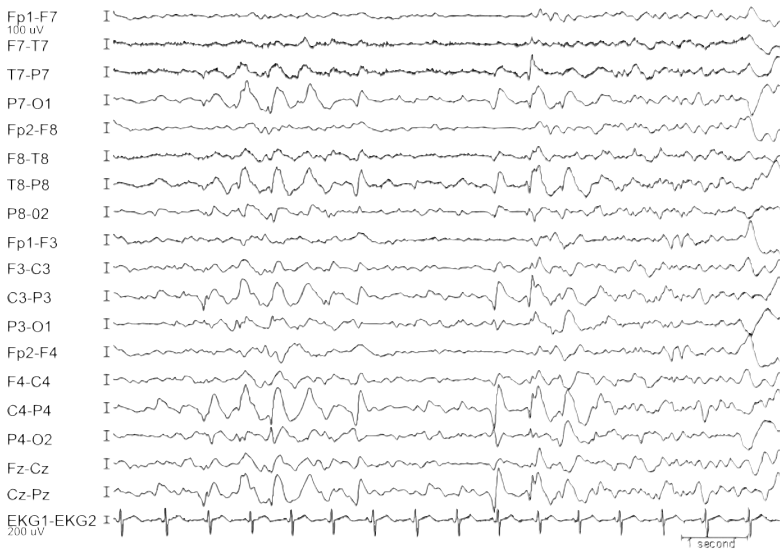
Interictal hypermetabolic subcortical band on brain FDG-PET in *doublecortin* mutation

Figure 1 Brain MRI revealing subcortical band heterotopia



T2-weighted brain MRI (A) shows subcortical band heterotopia. Compared to basal ganglion on a 10% point color scale, FDG-PET (B) shows intensely increased FDG uptake (arrows) by the subcortical band and reduced uptake by the cerebral cortex (arrowheads).

Figure 2 Interictal scalp EEG with generalized slow spike and wave (100–200 mAmp, 1.5–2.5 Hz, in runs of 2–5 seconds) maximum in the parieto-occipital (80%, illustrated in figure) and frontal (20%) regions present during 70% of record



A 13-year-old girl with generalized tonic and grand mal seizures had brain MRI that revealed subcortical band heterotopia (SBH) (figure 1). Twenty-four-hour EEG showed pervasive generalized slow spike and wave pattern (figure 2). Blood DNA confirmed a mutation in the *doublecortin* (*DCX*) gene. Interictal 18-fluoro-deoxy (FDG) PET showed reduced FDG uptake (~10%) in the cerebral cortex and intensely increased uptake (~20%) in the subcortical band (figure 1), suggesting epileptogenic subcortical band correlating with pervasive slow spike wave pattern on simultaneous EEG. Two PET reports[1,2] showed similar or minor increased FDG uptake in the heterotopic band compared to the cerebral cortex.

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1. Miura K, Watanabe K, Maeda N, et al. Magnetic resonance imaging and positron emission tomography of band heterotopia. Brain Dev 1993;15:288–290.
2. De Volder AG, Gadisseux JF, Michel CJ, et al. Brain glucose utilization in band heterotopia: synaptic activity of "double cortex". Pediatr Neurol 1994;11:290–294.